

Y. Lee et al.
U.S. Serial No. 10/635,245
Page 5 of 6

REMARKS

Claims 1-8, 10-18, and 20 are pending in the application. Claims 1 and 11 have been amended by the present amendment. The amendments are fully supported by the application as originally filed (see, e.g., specification at page 7, last paragraph to page 8, first paragraph).

As amended, independent claims 1 and 11 recite a lead frame in which a ground structure includes at least one first ground portion directly connected to tie bars that support a die pad.

Applicants' claimed invention is directed to a ground-enhanced semiconductor package and a lead frame in which at least one first ground portion 20 is directly connected to a tie bar 12, and a hollow-out area 21 is formed between the first ground portion 20 and the tie bar 12, so as to prevent deformation of the ground structure to assure adequate grounding performance of the semiconductor package (see, e.g., FIGS. 1-3A; specification at page 7, last paragraph to page 8, first paragraph; and page 8, last paragraph to page 9, first line).

In other words, according to the Applicants' claimed invention, first ground portion 20 is directly connected to the tie bar 12 without connecting to any other component.

Claims 1, 3-6, 8, 11, 13-16, and 18 were rejected under 35 USC 102(c) as being anticipated by U.S. Patent Application Publication US 2004/0061205 to Han et al. (hereinafter "Han"). Claims 2, 7, 10, 17, and 20¹ were rejected under 35 USC 103(a) as being unpatentable over Han. These rejections are respectfully traversed.

Han does not teach or suggest a semiconductor package or lead frame in which a ground structure includes at least one first ground portion directly connected to tie bars that support a die pad.

¹ Claim 12 was not listed among the claims rejected under 35 USC 103(a) over Han (Office Action of 02/09/2006 at page 5, paragraph #4). However, in the next paragraph on page 5 of the Office Action, the sentence begins with: "Regarding claims 2 and 12..."

Y. Lee et al.
U.S. Serial No. 10/635,245
Page 6 of 6

On page 2 of the Office Action of 02/09/2006, major extents 122 of Han were cited as allegedly corresponding to Applicants' claimed "first ground portions," and corner portions of a bonding ring 104 were cited as allegedly corresponding to Applicants' claimed "tie bars" (see marked-up version of Han's FIG. 1 – page 4 of the Office Action).

In Han, the major extents 122 are each connected to one end of an open ring 116, and the other end of the open ring 116 is connected to a corner portion of the bonding ring 104 (see, e.g., FIG. 1 of Han).

However, in Han, the major extents 122 are not directly connected to the "tie bars" (corner portions of the bonding ring 104). Instead, the open rings 116 are provided between the major extents 122 and the "tie bars."

There is no teaching or suggestion in Han of at least one first ground portion directly connected to tie bars that support a die pad, as recited in independent claims 1 and 11. For at least the reasons discussed above, the Han reference does not anticipate or otherwise render obvious the Applicants' claimed invention.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,



Peter F. Corless (Reg. No. 33,860)
Steven M. Jensen (Reg. No. 42,693)
Edwards Angell Palmer & Dodge
P.O. Box 55874
Boston, MA 02205

Date: July 10, 2006

Phone: (617) 439-4444

Customer No. 21874